

WHAT IS CLAIMED IS:

1. Road test simulator comprising:

four rollers and four asynchronous motors, wherein each of the asynchronous motors drives a respective one of the rollers,

four control units, wherein each of the rollers is assigned to a respective one of the control units, and

a synchronization control, which is effected electronically in accordance with a ring structure such that a given one of the control units assigned to a given one of the rollers receives a synchronization pulse and an actual speed value for the given control unit and receives a further synchronization pulse and a further actual speed value for a further one of the control units assigned to a preceding one of the rollers.

2. Road test simulator as claimed in Claim 1, wherein the synchronization control is configured to interrupt the ring structure as a function of predefined parameters, in accordance with a drive type with which vehicles to be tested are equipped.

3. Road test simulator as claimed in Claim 1, wherein at least one of the control units generates a torque to simulate uphill or downhill driving.

4. Road test simulator as claimed in Claim 1, wherein the rollers are configured to be displaced relative to one another, and wherein the synchronization control is configured to produce and maintain a given relative displacement.

5. Road test simulator as claimed in Claim 1, further comprising:

detectors detecting an actual speed value of a first of the rollers and an actual speed value of a second of the rollers, and

an input providing a speed setpoint for at least one of speed and angle control of the first roller,

wherein the synchronization control assigns a master function to the first roller, the detected actual speed value of the roller acting as the master is defined as a speed setpoint for at least one of speed and angle control of the second roller, and the synchronization control controls the speed of the second roller such that the actual speed value of the second roller matches the speed setpoint.

6. Road test simulator as claimed in Claim 5, wherein the speed setpoint of the roller acting as the master is defined by a higher-level control of the synchronization control.

7. Road test simulator as claimed in Claim 5, wherein the speed setpoint of the roller acting as the master is defined by a vehicle speed of a vehicle to be tested from actuating a gas pedal of the vehicle.

8. Road test simulator as claimed in Claim 5, further comprising:
a detector detecting an actual speed value of a third of the rollers,
wherein the detected actual speed value of the roller acting as the master is defined as a speed setpoint for at least one of speed and angle control of the third roller, and the synchronization control controls the speed of the third roller such that the actual speed value of the third roller matches the speed setpoint.

9. Road test simulator as claimed in Claim 8, further comprising:
a detector detecting an actual speed value of a fourth of the rollers,

wherein the detected actual speed value of the roller acting as the master is defined as a speed setpoint for at least one of speed and angle control of the fourth roller, and the synchronization control controls the speed of the fourth roller such that the actual speed value of the fourth roller matches the speed setpoint.

10. Road test simulator as claimed in Claim 1, wherein the synchronization pulses are output from the rollers at least once per rotation.

11. Road test simulator as claimed in Claim 10, wherein the control unit of a downstream one of the rollers is configured to receive both the synchronization pulse derived from one of the rollers located upstream in the ring structure and the synchronization pulse derived from the downstream roller associated with the control unit, and wherein the synchronization control counts the number of pulses of a tachometer occurring between these two synchronization pulses, and uses the count to adjust a desired offset between the two rollers.

12. A method, comprising:

assigning a master function to a first of four rollers of a road test simulator,
defining a speed setpoint for control of the roller acting as the master,
detecting an actual speed value of the roller acting as the master,
defining the detected actual speed value of the roller acting as the master as a speed setpoint for controlling a second of the four rollers,
detecting an actual speed value of the second roller, and
controlling the speed of the second roller to match the actual speed value of the second roller to the speed setpoint.

13. The method according to Claim 12, further comprising:

defining the detected actual speed value of the roller acting as the master as a speed setpoint for controlling a third of the four rollers,

detecting an actual speed value of the third roller, and

controlling the speed of the third roller to match the actual speed value of the third roller to the speed setpoint.

14. The method according to Claim 13, further comprising:

defining the detected actual speed value of the roller acting as the master as a speed setpoint for controlling a fourth of the four rollers,

detecting an actual speed value of the fourth roller, and

controlling the speed of the fourth roller to match the actual speed value of the fourth roller to the speed setpoint.

15. The method according to Claim 12, further comprising:

receiving a first synchronization pulse from the first roller and a second synchronization pulse from the second roller,

detecting an offset between the first and second synchronization pulses, and

utilizing the detected offset to adjust an offset between the first roller and the second roller.

16. The method according to Claim 15, further comprising:

receiving the second synchronization pulse from the second roller and a third synchronization pulse from the third roller,

detecting an offset between the second and third synchronization pulses, and

utilizing the detected offset to adjust an offset between the second roller and the third roller.

17. The method according to Claim 16, further comprising:
 - receiving the third synchronization pulse from the third roller and a fourth synchronization pulse from the fourth roller,
 - detecting an offset between the third and fourth synchronization pulses, and
 - utilizing the detected offset to adjust an offset between the third roller and the fourth roller.